study of intravenous peramivir with dosing over multiple days. The study enrolled 42 influenza patients with complications due to one or more qualifying conditions: diagnosis with poorly controlled diabetes mellitus, a chronic respiratory disease requiring pharmacotherapy, or current treatment with any immunosuppressive drug. Peramivir was administered at 300 mg or 600 mg per day, and the duration was adjusted (up to five days) on a case-by-case basis, depending on the patient's temperature and clinical condition as determined by the treating physician.

Results: In this study, the median time to alleviation of symptoms in all 37 evaluable patients treated with either 300 mg or 600 mg peramivir daily was 68.6 hrs (90% CI, 41.5 hrs - 113.4 hrs). The median time for each group (300 mg and 600 mg) was 114.4 hrs and 42.3 hrs respectively, while the time for each group categorized as single-dosed (n = 10) and multipledosed (n = 27) was 92.0 hrs and 64.1 hrs, respectively. The incidence of pneumonia, which was the main complication resulting from influenza was 8.1% (3/37). There were no drugrelated SAEs throughout the study.

Conclusion: The results suggest that intravenous peramivir was effective for treatment of influenza patients with a high-risk for complications co morbidities and increased risk for complications due to influenza infection.

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Neuraminidase sub typing and drug resistance among influenza A viruses circulating in western India

V. Potdar*, M. Dakhave, M. Chadha, A. Mishra

National Institute of Virology, 421001, India

Background: Influenza viruses are important respiratory pathogens in India. Clinical, virological and molecular surveillance is being carried out under a Multi- site Influenza Surveillance project (Indian Council of Medical Research-Centers for Diseases Control). National Institute of Virology, Pune, India monitors genetic variations and drug susceptibility in circulating influenza viruses. Most of the influenza A viruses are amantadine resistance worldwide and hence neuraminidase inhibitors (NAI) oseltamivir or zanamivir are recommended for the treatment of infection with influenza viruses.

Methods: Neuraminidase sub typing of 42 H1 and 48 H3 viruses from the year 2003 to April 2009 were carried out by one step diagnostic RT PCR using published primers. Universal M13 primers forward and reverse were used for Sequencing and subtypes of isolates were confirmed by blast analysis. 253 bp product of N1 isolates contains established mutation site H274Y leading to oseltamivir resistance .To check the mutation sites E119V, I222V, R292K, N294S and - 244-247 for N2 isolates; further 1103 bp N2 gene was amplified using specific primers.

Results: NA Subtyping: 90 influenza A isolates from 2003-April 2009 circulating in Pune were amplified. 90 influenza A isolates were confirmed as 42 N1 and 48 N2 respectively by sequencing. No unusual combinations were observed Detection of drug resistant sites for N1 and N2 isolates: oseltamivir resistance was analyzed by sequencing. All N1 isolates were sensitive to oseltamivir. N2 isolates: To check the mutation sites for N2 (E119V, I222V, R292K, N294S and - 244- 247); further 1103 bp products were amplified. All 44 N2 isolates were sensitive to both the drugs oseltamivir and zanamivir.

Conclusion: All seasonal influenza A viruses A/H1N1 and A/H3N2 were sensitive to neuraminidase inhibitors. Antiviral drugs against influenza are rarely used in India as a therapeutic agent. However due to globalization, resistant viruses could be seeded in Pune from elsewhere.Though no resistant viruses were detected, continuous surveillance of influenza viruses is needed to monitor circulating strains, and their drug susceptibility in view of pandemic potential of influenza virus.

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28.010

Influenza in the tropics - Epidemiology and burden

L. Da Silva*, M.H. Kyaw

Novartis Vaccines and Diagnostics, Cambridge, MA, USA

Background: Although influenza presents a significant burden in the tropics, the belief that this disease primarily affects people in temperate climates and developed countries persists because of peculiar circumstances of disease epidemiology, other local causes of morbidity and mortality, and better surveillance systems in countries in temperate regions. The public health burden of influenza is high in the tropics, particularly in children, yet it has been suggested that vaccination programs would not be cost-effective in this region because little is known about the true impact of the disease.

Methods: Systematic literature review of Medline using search terms of influenza, tropical, and epidemiology.

Results: In Medline, 155 manuscripts were published between 1969 and 2009. Influenza in tropical regions has gained more attention in the medical literature in the twenty-first century; 118 of 155 papers (76%) appeared after 1999. Twenty-three studies presented data on laboratory-confirmed cases of influenza in tropical regions. Outbreaks and epidemics present a significant public health burden in tropical regions. For example, in Madagascar in 2002, more than 27,000 cases of influenza and 800 deaths occurred within a period of three months despite rapid public health intervention. In tropical regions, viral transmission is usually year-round and commonly has two peaks annually. Co-circulation of what are considered ''northern'' or ''southern'' strains occurs year-round in tropical regions. Tropical regions, thus, may be the source of new strains that are then disseminated to other latitudes. However, the clinical characteristics, impact on healthcare services, and seasonal variation of influenza in tropical regions are still not clearly understood, based on the current literature. A third category of strain recommendation for influenza vaccines may be needed for tropical regions.

Conclusion: The burden of influenza in tropical countries may be higher than in North America or Europe. More stud-

ies in the tropics are necessary to define the impact and seasonality of influenza in these regions. These data could help identify the optimal timing of vaccination programs and other measures for the prevention and control of seasonal and pandemic influenza in the tropics, including protection for travelers and control of emerging strains.

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28.011

Novel influenza A H1N1 (NIA) infection in Argentinean Children — Experience at Hospital de Niños ''Ricardo Gutiérrez''

E.L. Lopez*, A. Fallo, M.M. Contrini, A. Mistchenko, C. Molise, S. Neyro, N. Gonzalez, D. Lazzarini, G. Manonelles, J. Grichener, M. Dastugue, A. Teper, N. Study Group

Hospital de Niños ''Ricardo Gutiérrez'', Buenos Aires, Argentina

Background: NIA pandemia (P) began in Argentina during respiratory virus season. Hospital Gutiérrez (HG) set up special outfitted examination room trailler; 5000 suspected cases were attended in 2 mo. Health care for P included 2 different stages: May24-June12, 695 outpatients mainly school-age were attended [Containment Phase(CP)]. After 17 ds with a widespread disease: June12-July11, 110 children were admitted to HG due to respiratory failure [Mitigation Phase(MP)]

Objective: to characterize clinical, lab and treatment of confirmed NIA patients (pts)

Methods: IFA was used to rule out other RV; confirmation by RT-PCR

Results: **CP**: 220/695(61.3%) cases were confirmed; 191students, 15 close contacts (CC), 8 international travelers, 3 teachers; 2 health-workers. The 191 confirmed student cases are reported: mean age: 9 ± 3(4-17) yr; 16(8%) had comorbidity(C). Most frequent symptoms: fever(F) 178(93%) and cough(Co)160(64%). Oseltamivir(Os) was prescribed to 150(78.5%); none of them was hospitalized. Duration of F and Co was lower in treated than untreated 2,1 vs 3.6 ds, and 4.2 vs 7 ds respectively($p < 0.001$). Secondary cases occurred in 41/297(15%) of CC, 12/31 in CC without Os prophylaxis (OsP) and 29/266 in CC with OsP($p = 0.0002$). Mild adverse events(AE) by Os were reported in 12% of treated pts and in 6.3% of CC

MP: 110 NIA cases represented 6.9% of admissions during this period (double of usual seasonal flu cases/yr). Mean age 43.4($\pm$54.4) mo; 61(55.5%) were younger than 24 mo. Main symptoms on admission: F 106(97.4%) and bronchiolitis 70(63.6%). C was present in 84/110(76.4%), it was more frequent in children > 24 mo: 38/61(62.3%) than younger 46/49(93.9%)($p < 0.0003$). Fifteen(13,6%) required ICU. Complications: 69/110(62.7%) pts; pneumonia 52/110(47.3%); pneumonitis 31/110(28.2%) [16/52(30.8%) had both X-Ray patterns]; encephalitis 1/110 (0.9%). Os treatment: 108(98.2%); AE 1/108(0.9%): unspecific exanthema. Mortality 6/110(5.5%); all of them had C; median age:87mo

Conclusion: NIA was mild in school-age pts

Admissions by NIA were twice higher than seasonal flu annually

Os was well tolerated by children

Os statistically reduced duration of F and Co

Os was effective to prevent secondary cases in CC

Mortality was low in hospitalized children, associated to Comorbidity

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28.012

Assessing the risk of Influenza virus strains isolated from birds and mammals to humans

G. Vdovichenko[1,*], A. Sergeev[1], O.K. Demina[1], A. Kabanov[1], A.S. Kudriavcev[2], A.V. Pal'cev[2], U.E. Narov[2], L.N. Shishkina[1], I.G. Drozdov[1]

[1] *FRSI State research center of virology and biotechnology ''Vector'', Novosibirsk, Russian Federation*
[2] *Novosibirsk Regional Oncological Clinic, Novosibirsk, Russian Federation*

Background: Influenza A virus is the subject of research of many scientists in the world. So now the attention of scientists focused on the problem of influenza, first because of the increased outbreaks of avian influenza in the world and the incidence of transmission of the disease to people who were in contact with sick birds. Secondly the threat today is the influenza virus of H1N1 subtype, which caused many diseases among people around the world. In this connection assessment of risk to human influenza virus strains of various origins is essential for timely implementation of effective anti-epidemic measures in order to prevent the development of an epidemic or pandemic influenza. We have evaluated parameters of infectivity of influenza virus strains (H5N1, H1N1 and H3N2 subtypes) for primary cell culture obtained from human lung tissues.

Methods: Three influenza A/Chicken/Suzdalka/2/05 (H5N1), A/Novosibirsk/1/09 (H1N1) and A/Aichi/2/68 (H3N2) virus strains from the collection of research institute of FRSI SRC VB ''Vector'' and primary cell cultures obtained from pieces of human lung tissue kindly provided by colleagues from the Regional Oncology Center of the Novosibirsk, Russia have been used.

Results: A comparison of the values 50% cell infecting dose (CID50) of strains found that the susceptibility of human lung cells to influenza A/Chicken/Suzdalka/2/05 virus strain in the 10 and 100 times more than values both A/Novosibirsk/1/09 and A/Aichi/2/68 virus strains respectively. However influenza A/Chicken/Suzdalka/2/05 strain had a 10 times lower progeny yield during 20 hours of replication in human lung cells compared with other strains.

Conclusion: Thus, our studies revealed influenza A/Chicken/Suzdalka/2/05 virus strain is able to more easily infect cells of the respiratory tract of man, but has a lower replicate activity than both A/Novosibirsk/1/09 and A/Aichi/2/68 virus strains. Influenza A/Chicken/Suzdalka/2/05 virus strain was isolated during an outbreak of avian flu among wild birds and poultry in the Novosibirsk region. During this period of the outbreak have not been established cases of avian influenza transmission from birds to local residents. Perhaps this is due